

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Jerry H. Stoller	Customer No.	23,444
Serial No.:	10/677,708	Art Unit:	1616
Date Filed:	October 02, 2003	Examiner:	Alton Nathaniel Pryor
For:	Controlling Plant Pathogens and Pests with Applied or Induced Auxins	Atty Docket No.	SOR028/189341

RESPONSE TO NON-FINAL OFFICE ACTION

Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In response to the Non-Final Office Action mailed August 1, 2011, please consider the following amendments and remarks:

Amendments to the Claims begin on page 2 of this response.

Remarks begin on page 15 of this response.

AMENDMENTS TO THE CLAIMS

1. (currently amended) A method for inhibiting fungi on and in plant tissues, comprising consisting essentially of:

applying a principal fungi-inhibitor and a metal, to seeds or tubers for a plant prior to planting, or to roots, foliage, flowers or fruit of a plant after planting, said principal fungi-inhibitor consisting of plant hormones including auxins, said auxins including at least indole-3-acetic acid and indole-3-butyric acid, said metal selected from the group consisting of alkaline earth metals, transition metals and mixtures thereof, said auxins applied at a rate of about 0.0028 grams to about 2.8 grams of auxin per 100 kg of seed when applied to seeds or at a rate of about 0.0002 to about 0.06 grams of auxin per hectare per day when applied to roots, foliage, flowers or fruit, said rate being in an amount effective to inhibit fungi growth but wherein said amount is insufficient to negatively effect growth of said plant tissues.

2. (Cancelled)

3. (Cancelled)

4. (Cancelled)

5. (Cancelled)

6. (Cancelled)

7. (Cancelled)

8. (Cancelled)

9. (Previously Presented) The method of Claim 1 wherein said auxins are applied to bean seeds at a rate of about 0.0028 to about 0.028 gm auxin/100 kg seed weight.

10. (Previously Presented) The method of Claim 9 wherein said auxins are applied at a rate of about 0.016 to about 0.112 gm auxin/100 kg seed weight.

11. (Previously Presented) The method of Claim 1 wherein said auxins are applied to potato seed pieces at a rate to result in about 0.0125 to about 2.8 gm auxin/hectare of planted pieces.

12. (Previously Presented) The method of Claim 11 wherein said auxins are applied at a rate to result in about 0.125 to about 0.28 gm auxin/hectare of planted pieces.

13. (Cancelled)

14. (Cancelled)

15. (Cancelled)

16. (Previously Presented) The method of Claim 1 wherein said metal is selected from the group consisting of calcium, zinc, copper, manganese and mixtures thereof.

17. (Previously Presented) The method of Claim 1 wherein said metal is present in a range of about 0.001 to about 5.0 percent-by-weight.

18. (Previously Presented) The method of Claim 1 wherein said principal fungi-inhibitor and said metal are applied by spraying said seeds or tubers with an aqueous solution including said principal fungi-inhibitor and said metal or by immersing said seeds or tubers in an aqueous solution including said principal fungi-inhibitor and said metal.

19. (Cancelled)

20. (Previously Presented) The method of Claim 1 wherein said fungi are selected from the group consisting of the *Fusarium*, *Rhizoctonia*, *Pythium* and *Phytophthora* families and mixtures thereof.

21. (Previously Presented) The method of Claim 1 wherein said plant is a crop plant selected from the group consisting of dry beans, soybeans, onions, corn, cotton, potatoes and mixtures thereof.

22. (Cancelled)

23. (Cancelled)

24. (Cancelled)

25. (Previously Presented) A method for inhibiting fungi on and in plant tissues, comprising:

manipulating the level of auxin in said plant tissues by applying a principal fungi-inhibitor and a metal, to seeds or tubers for a plant prior to planting, or to roots, foliage, flowers or fruit of a plant after planting, said principal fungi-inhibitor being plant hormones including auxins, said auxins including at least indole-3-acetic acid and indole-3-butyric acid, said metal selected from the group consisting of calcium, zinc, copper, manganese and mixtures thereof, said auxins applied at a rate of about 0.0028 grams to about 2.8 grams of auxin per 100 kg of seed when applied to seeds or at a rate of about 0.0002 to about 0.06 grams of auxin per hectare per day when applied to roots, foliage, flowers or fruit, said rate being in an amount effective to adjust the auxin in said plant tissues to a level sufficient to inhibit growth of said fungi but wherein said level is insufficient to negatively effect growth of said plant tissues.

26. (Previously Presented) The method of Claim 25 wherein said plant hormones further include a synthetic auxin is selected from the group consisting of indole propionic acid, phenylacetic acid, naphthalene acetic acid (NAA), 2,4-dichlorophenoxy acetic acid, 4-chloroindole-3-acetic acid, 2,4,5-trichlorophenoxy acetic acid, 2-methyl-4-chlorophenoxy acetic acid, 2,3,6-trichlorobenzoic acid, 2,4,6-trichlorobenzoic acid, 4-amino-3,4,5-trichloropicolinic acid and mixtures thereof.

27. (Cancelled)

28. (Previously Presented) A method for controlling the growth of *Fusarium* and *Rhizoctonia* organisms on dry bean plants, comprising:

applying a principal fungi-inhibitor and a metal to bean seeds for said plants prior to planting, said principal fungi-inhibitor consisting of plant hormones including auxins, said auxins including at least indole-3-acetic acid and indole-3-butyric acid, said metal selected from the group consisting of calcium, zinc, copper, manganese and mixtures thereof, said auxins applied at a rate of about 0.0028 grams to about 0.028 grams of auxin per 100 kg of seed, said rate being in an amount effective to inhibit the growth of said organisms on and in tissues of said plants but wherein said amount is insufficient to negatively effect growth of tissues of said plants.

29. (Cancelled)

30. (Cancelled)

31. (Previously Presented) The method of Claim 28 wherein said principal fungi-inhibitor and said metal are applied by spraying said seeds with an aqueous solution of said principal fungi-inhibitor and said metal.

32. (Cancelled)

33. (Currently Amended) A method for inhibiting an infestation of plants by insects and larvae of said insects, ~~comprising~~ consisting essentially of:

applying an insect-inhibitor and a metal, to the seeds or tubers of said plants prior to planting, or to the roots, foliage, flowers or fruit of said plants after planting, said insect-inhibitor consisting of hormones including auxins, said auxins including at least indole-3-acetic acid and indole-3-butyric acid, said metal selected from the group consisting of alkaline earth metals, transition metals and mixtures thereof, said auxins applied at a rate of about 0.0028 grams to

about 2.8 grams of auxin per 100 kg of seed when applied to seeds or at a rate of about 0.0002 to about 0.06 grams of auxin per hectare per day when applied to roots, foliage, flowers or fruit, said rate being in an amount effective to inhibit infestation by said insects and larvae but wherein said amount is insufficient to negatively effect growth of tissues of said plants.

34. (Cancelled)

35. (Cancelled)

36. (Cancelled)

37. (Cancelled)

38. (Previously Presented) The method of Claim 33 wherein said plant hormones further include a synthetic auxin selected from the group consisting of indole propionic acid, phenyl acetic acid, naphthalene acetic acid (NAA), 2,4-dichlorophenoxy acetic acid, 4-chloroindole-3-acetic acid, 2,4,5-trichlorophenoxy acetic acid, 2-methyl-4-chlorophenoxy acetic acid, 2,3,6-trichlorobenzoic acid, 2,4,6-trichlorobenzoic acid, 4-amino-3,4,5-trichloropicolinic acid and mixtures thereof.

39. (Cancelled)

40. (Cancelled)

41. (Cancelled)

42. (Previously Presented) The method of Claim 33 wherein said auxins are applied at a rate of about 0.002 to about 0.01 gm auxin/hectare/day.

43. (Previously Presented) The method of Claim 33 wherein said insect-inhibitor and said metal are applied to said roots, foliage, flowers or fruit as an aqueous solution.

44. (Cancelled)

45. (Previously Presented) The method of Claim 43 wherein said insect-inhibitor and said metal are applied as an aqueous solution by drip irrigation or by spray application.

46. (Cancelled)

47. (Previously Presented) The method of Claim 33 wherein said metal is selected from the group consisting of calcium, zinc, copper, manganese and mixtures thereof.

48. (Previously Presented) The method of Claim 33 wherein said insects are selected from the group consisting of sucking insects, chewing insects and mixtures thereof.

49. (Original) The method of Claim 48 wherein said sucking insects are selected from the group consisting of mites, aphids, thrips, white fly, leaf hoppers, flea hoppers, scaling insects and mixtures thereof and said chewing insects are selected from the group consisting of *Lepidoptera*, *Helidoceras* and mixtures thereof.

50. (Previously Presented) The method of Claim 33 wherein said plants are crop plants selected from the group consisting of dry beans, soybeans, onions, corn, cotton, potatoes and mixtures thereof.

51. (Previously Presented) A method for inhibiting an infestation of plants by pests, including insects and larvae of said insects, comprising:

manipulating the level of auxin in plant tissues of said plants by applying an insect-inhibitor and a metal, to seeds or tubers for said plants prior to planting, or to roots, foliage, flowers or fruit of said plants after planting, said insect-inhibitor being plant hormones including auxins, said auxins including at least indole-3-acetic acid and indole-3-butyric acid, said metal selected from the group consisting of alkaline earth metals, transition metals and mixtures thereof, said auxins applied at a rate of about 0.0028 grams to about 2.8 grams of auxin per 100 kg of seed when applied to seeds or at a rate of about 0.0002 to about 0.06 grams of auxin per

hectare per day when applied to roots, foliage, flowers or fruit, said rate being in an amount effective to adjust the auxin in said plant tissues to a level sufficient to inhibit infestation by said pests but wherein said level is insufficient to negatively effect growth of said plant tissues.

52. (Previously Presented) The method of Claim 51 wherein said plant hormones further include a synthetic auxin selected from the group consisting of indole propionic acid, phenyl acetic acid, naphthalene acetic acid (NAA), 2,4-dichlorophenoxy acetic acid, 4-chloroindole-3-acetic acid, 2,4,5-trichlorophenoxy acetic acid, 2-methyl-4-chlorophenoxy acetic acid, 2,3,6-trichlorobenzoic acid, 2,4,6-trichlorobenzoic acid, 4-amino-3,4,5-trichloropicolinic acid and mixtures thereof.

53. (Cancelled)

54. (Previously Presented) A method for inhibiting an infestation of onion plants by thrips and larvae of said thrips, comprising:

applying a thrip-inhibitor and a metal to the foliage of said onion plants, said thrip-inhibitor consisting of plant hormones including auxins, said auxins comprising at least indole-3-acetic acid and indole-3-butyric acid, said metal selected from the group consisting of alkaline earth metals, transition metals and mixtures thereof, said auxins applied to said foliage at a rate of about 0.0002 to about 0.06 grams of auxin per hectare per day, said rate being in an amount effective to inhibit infestation by said thrips and larvae but wherein said amount is insufficient to negatively effect growth of tissues of said plants.

55. (Cancelled)

56. (Cancelled)

57. (Previously Presented) The method of Claim 54 wherein said thrip-inhibitor and said metal are applied as an aqueous solution by spray application to said foliage.

58. (Previously Presented) The method of Claim 57 wherein said metal is selected from the group consisting of calcium, zinc, copper, manganese and mixtures thereof.

59. (Cancelled)

60. (Currently Amended) A seed or seed piece for producing a plant having enhanced resistance to fungi, ~~comprising~~ consisting essentially of:

a plant seed or seed piece; and

plant hormones including auxins, said auxins including at least indole-3-acetic acid and indole-3-butyric acid, together with a metal selected from the group consisting of alkaline earth metals, transition metals and mixtures thereof, said plant hormones dispersed on the surface of said plant seed or seed piece as a principal fungi-inhibitor, said auxins dispersed on said plant seed or seed piece at a rate of about 0.0028 grams to about 2.8 grams of auxin per 100 kg of seed, said rate being in an amount effective to inhibit fungi growth in or on tissues of said plant but wherein said amount is insufficient to negatively effect growth of said plant tissues.

61. (Cancelled)

62. (Cancelled)

63. (Previously Presented) The plant seed or seed piece of Claim 60 wherein said auxins are present in an amount of about 0.0028 to about 0.028 gm auxin/100 kg seed weight.

64. (Previously Presented) The plant seed or seed piece of Claim 60 wherein said plant seed is a bean seed and said auxins are present in an amount from about 0.0028 to about 0.028 gm auxin/100 kg seed weight.

65. (Previously Presented) The plant seed or seed piece of Claim 60 wherein said plant seed piece is a potato seed piece and said auxins are present in an amount which results in about 0.0125 to about 2.8 gm auxin/hectare of planted seed pieces.

66. (Previously Presented) The plant seed or seed piece of Claim 60 wherein said fungi are selected from the group consisting of the *Fusarium*, *Rhizoctonia*, *Pythium* and *Phytophthora* families and mixtures thereof.

67. (Previously Presented) The plant seed or seed piece of Claim 60 wherein said plant is a crop plant selected from the group consisting of dry beans, soybeans, onions, corn, cotton, potatoes and mixtures thereof.

68. (Previously Presented) A bean seed for producing a bean plant having enhanced resistance to fungi, comprising:

a bean plant seed; and

plant hormones including auxins, said auxins including at least indole-3-acetic acid and indole-3-butyric acid, together with a metal selected from the group consisting of alkaline earth metals, transition metals and mixtures thereof, said plant hormones dispersed on the surface of said bean plant seed as a principal fungi-inhibitor, said auxins dispersed on said bean plant seed at a rate of about 0.016 grams to about 0.112 grams of auxin per 100 kg of seed, said rate being in an amount effective to inhibit growth of said fungi but wherein said amount is insufficient to negatively effect growth of said bean plant.

69. (Previously Presented) The bean plant seed of Claim 68 wherein said plant hormones further include at least one of an ethylene, a cytokinin, a gibberellic acid, an abscisic acid, a brassinosteroid, a jasmonate, a salicylic acid and precursors and mixtures thereof dispersed on said surface of said bean plant seed.

70. (Cancelled)

71. (Previously Presented) The method of claim 1 wherein said principal fungi-inhibitor and said metal are applied as an aqueous solution.

72. (Cancelled)

73. (Cancelled)

74. (Cancelled)

75. (Cancelled)

76. (Previously Presented) The method of Claim 1 wherein said plant hormones further include a synthetic auxin selected from the group consisting of indole propionic acid, phenylacetic acid, naphthalene acetic acid (NAA), 2,4-dichlorophenoxy acetic acid, 4-chloroindole-3-acetic acid, 2,4,5-trichlorophenoxy acetic acid, 2-methyl-4-chlorophenoxy acetic acid, 2,3,6-trichlorobenzoic acid, 2,4,6-trichlorobenzoic acid, 4-amino-3,4,5-trichloropicolinic acid and mixtures thereof.

77. (Previously Presented) The method of Claim 1 wherein said plant hormones further include another plant hormone selected from the group consisting of ethylene, cytokinin, gibberellin, abscisic acid, brassinosteroid, jasmonate, salicylic acid and mixtures thereof.

78. (Previously Presented) The method of Claim 25 wherein said plant hormones further include another plant hormone selected from the group consisting of ethylene, cytokinin, gibberellin, abscisic acid, brassinosteroid, jasmonate, salicylic acid and mixtures thereof.

79. (Previously Presented) The method of Claim 25 wherein said metal is present in a range of about 0.001 to about 5.0 percent-by-weight.

80. (Previously Presented) The method of Claim 25 wherein said principal fungi-inhibitor and said metal are applied as an aqueous solution.

81. (Previously Presented) The method of Claim 28 wherein said plant hormones further include a synthetic auxin selected from the group consisting of indole propionic acid, phenylacetic acid, naphthalene acetic acid (NAA), 2,4-dichlorophenoxy acetic acid, 4-

chloroindole-3-acetic acid, 2,4,5-trichlorophenoxy acetic acid, 2-methyl-4-chlorophenoxy acetic acid, 2,3,6-trichlorobenzoic acid, 2,4,6-trichlorobenzoic acid, 4-amino-3,4,5-trichloropicolinic acid and mixtures thereof.

82. (Previously Presented) The method of Claim 28 wherein said plant hormones further include another plant hormone selected from the group consisting of ethylene, cytokinin, gibberellin, abscisic acid, brassinosteroid, jasmonate, salicylic acid and mixtures thereof.

83. (Previously Presented) The method of Claim 28 wherein said metal is present in a range of about 0.001 to about 5.0 percent-by-weight.

84. (Previously Presented) The method of Claim 33 wherein said metal is present in a range of about 0.001 to about 5.0 percent-by-weight.

85. (Previously Presented) The method of Claim 33 wherein said plant hormones further include another plant hormone selected from the group consisting of ethylene, cytokinin, gibberellin, abscisic acid, brassinosteroid, jasmonate, salicylic acid and mixtures thereof.

86. (Previously Presented) The method of Claim 51 wherein said plant hormones further include another plant hormone selected from the group consisting of ethylene, cytokinin, gibberellin, abscisic acid, brassinosteroid, jasmonate, salicylic acid and mixtures thereof.

87. (Previously Presented) The method of Claim 51 wherein said metal is selected from the group consisting of calcium, zinc, copper, manganese and mixtures thereof.

88. (Previously Presented) The method of Claim 51 wherein said metal is present in a range of about 0.001 to about 5.0 percent-by-weight.

89. (Previously Presented) The method of Claim 51 wherein said insect-inhibitor and said metal are applied as an aqueous solution.

90. (Previously Presented) The method of Claim 54 wherein said plant hormones further include a synthetic auxin selected from the group consisting of indole propionic acid, phenylacetic acid, naphthalene acetic acid (NAA), 2,4-dichlorophenoxy acetic acid, 4-chloroindole-3-acetic acid, 2,4,5-trichlorophenoxy acetic acid, 2-methyl-4-chlorophenoxy acetic acid, 2,3,6-trichlorobenzoic acid, 2,4,6-trichlorobenzoic acid, 4-amino-3,4,5-trichloropicolinic acid and mixtures thereof.

91. (Previously Presented) The method of Claim 54 wherein said plant hormones further include another plant hormone selected from the group consisting of ethylene, cytokinin, gibberellin, abscisic acid, brassinosteroid, jasmonate, salicylic acid and mixtures thereof.

92. (Previously Presented) The method of Claim 54 wherein said metal is present in a range of about 0.001 to about 5.0 percent-by-weight.

93. (Previously Presented) The method of Claim 60 wherein said metal is selected from the group consisting of calcium, zinc, copper, manganese and mixtures thereof.

94. (Previously Presented) The method of Claim 60 wherein said metal is present in a range of about 0.001 to about 5.0 percent-by-weight.

95. (Previously Presented) The method of Claim 65 wherein said auxins are present in an amount which results in about 0.125 to about 0.28 gm auxin/hectare of planted seed pieces.

96. (Previously Presented) The method of Claim 68 wherein said plant hormones further include a synthetic auxin selected from the group consisting of indole propionic acid, phenylacetic acid, naphthalene acetic acid (NAA), 2,4-dichlorophenoxy acetic acid, 4-chloroindole-3-acetic acid, 2,4,5-trichlorophenoxy acetic acid, 2-methyl-4-chlorophenoxy acetic acid, 2,3,6-trichlorobenzoic acid, 2,4,6-trichlorobenzoic acid, 4-amino-3,4,5-trichloropicolinic acid and mixtures thereof.

97. (Previously Presented) The method of Claim 1 wherein said auxins are applied at a rate of about 0.002 to about 0.01 gm auxin/hectare/day when applied to roots, foliage, flowers or fruit.

98. (Previously Presented) The method of Claim 25 wherein said auxins are applied at a rate of about 0.002 to about 0.01 gm auxin/hectare/day when applied to roots, foliage, flowers or fruit.

99. (Previously Presented) The method of Claim 51 wherein said auxins are applied at a rate of about 0.002 to about 0.01 gm auxin/hectare/day when applied to roots, foliage, flowers or fruit.

100. (Previously Presented) The method of Claim 54 wherein said auxins are applied at a rate of about 0.002 to about 0.01 gm auxin/hectare/day.

REMARKS

This Amendment is responsive to the Office Action mailed August 1, 2011. Claims 1, 9-12, 16-18, 20, 21, 25, 26, 28, 31, 33, 38, 42, 43, 45, 47-52, 54, 57, 58, 60, 63-69, 71, and 76-100 are pending in the application. Claims 2-8, 13-15, 19, 22-24, 27, 29, 30, 32, 34-37, 39-41, 44, 46, 53, 55, 56, 59, 61, 62, 70, 72-75 have been cancelled. Claims 1, 33, and 60 have been amended. In the application, claims 1, 25, 28, 33, 51, 54, 60, and 68 are written in independent form. All other claims are written in dependent form. Reconsideration and allowance of this application are respectfully requested in view of the above amendments and the following remarks.

Initially, Applicant would like to thank the Examiner for the telephonic interview that was held with Applicant's attorney on September 16, 2011. In that interview, Applicant's attorney and the Examiner discussed the prior art and possible claim amendments and arguments to overcome the outstanding claim rejections.

I. Prior Art Rejections

In the Office Action, the Examiner rejected the claims under 35 U.S.C. § 103(a) as follows:

- Claims 1, 9-12, 16-18, 20, 21, 25, 26, 28, 31, 33, 38, 42, 43, 45, 47-52, 54, 58, 60, 63-69, 71, and 76-100 over U.S. Patent No. 4,496,388 to Clough ("*Clough*") in view of U.S. Patent No. 4,286,020 to Himel et al. ("*Himel*"); and
- Claims 1, 9-12, 16-18, 20, 21, 25, 26, 28, 31, 33, 38, 42, 43, 45, 47-52, 54, 57, 58, 60, 63-69, 71, 76-100 over *Clough* in view of Chinese Patent Appln. No. 95102367.5 to Fashui et al. ("*Fashui*"), Chinese Patent Appln. No. 02117261.7 to Xianguo et al.

(“*Xianguo*”), PCT Patent Appln. Pub. No. WO9400986 to Winston (“*Winston*”), and *Himel*.

A. Independent Claims 1, 33, and 60

Applicant has amended claims 1, 33, and 60 by replacing the transitional phrase “comprising” with “consisting essentially of.” Use of the transitional phrase “consisting essentially of” limits the scope of a claim to “the specified materials or steps and those that do not materially affect the basic and novel characteristics of the claimed invention.” MPEP §2111.03 (internal citations omitted).

Applicant respectfully submits that one of the basic and novel characteristics of the claimed invention is the use of specific auxins to control insects and disease in the absence of other pesticides. Indeed, Applicant’s specification supports the use of auxins to the exclusion of other pesticides as follows: “disease and insect control can be achieved by application of naturally occurring or synthetic auxins or other hormones which will affect the auxin levels without requiring the use of environmentally harmful pesticides.” *See* Applicant’s specification at paragraph [0015]. Thus, any compound that uses other pesticides would materially affect the basic and novel characteristics of the claimed invention. Accordingly, any reference that requires the use of pesticides in addition to auxin does not anticipate or render obvious claims 1, 33, and 60.

Clough is an example of just such a reference because every embodiment of *Clough* discloses the use of fungicidal triazole and imidazole compounds to treat plants. While *Clough* appears to suggest that auxin may be added to these pesticides for purposes of controlling plant growth, it does not disclose or suggest the use of auxins in the absence of the triazole and imidazole compounds. Accordingly, *Clough* cannot be used to render the claims obvious.

None of the other art relied on by the Examiner in rejecting the claims overcomes the deficiency of *Clough*. In fact, the other prior art fails to disclose numerous features of the claims. For example, as the Examiner points out on page 6 of the Office Action, “[n]one of the cited references exemplify an invention specifically comprising indole acetic acid, inole butyric acid and a metal compound such as a calcium compound, the instant calcium concentration, the application rate of auxin or the control of insects or fungi.”

B. Claims 1, 9-12, 17, 25, 28, 33, 42, 51, 54, 60, 63-65, 68, 79, 84, 88, 92, 94, 95, 97-100

Claims 1, 9-12, 25, 28, 33, 42, 51, 54, 60, 63-65, 95, and 97-100 recite specific auxin application rate ranges. Claims 17, 79, 83, 84, 88, 92, and 94 recite specific metal concentration ranges. The Examiner has asserted that “the references do not disclose the instant auxin application rate ranges as well as metal concentration ranges. For this reason, it would have been expected that any application rate of auxin and any metal concentration range would have been effective.” *See* Office Action at 7 (emphasis added). Applicant respectfully submits that the Examiner has construed the prior art too broadly and has not made a *prima facie* case of obviousness.

The MPEP makes it clear that “if the reference’s disclosed range is so broad as to encompass a very large number of possible distinct compositions, this might present a situation analogous to the obviousness of a species when the prior art broadly discloses a genus.” MPEP 2144.05(I). In such a case, “[t]he fact that a claimed species or subgenus is encompassed by a prior art genus is not sufficient by itself to establish a *prima facie* case of obviousness.” MPEP 2144.08(II). Thus, where a reference’s disclosed range is so broad as to encompass a very large number of possible distinct compositions, and the claimed range is encompassed by that broad range, there is no *prima facie* case of obviousness.

Such is the case here. In the present case, despite the fact that no ranges are disclosed in the prior art, the Examiner has defined the prior art ranges as broadly as possible, stating that “any application rate of auxin and any metal concentration range would have been effective.” This range is so broad that it encompasses all distinct compositions that include the auxins or the metals claimed. Taken to its logical conclusion, this would mean that where a prior art reference discloses no range, it actually renders all ranges obvious. Applicant respectfully submits that this argument contradicts the MPEP. Because the above identified claims recite specific ranges, they are not *prima facie* obvious over the art relied on by the Examiner.

Moreover, even if the Examiner did make a *prima facie* case of obviousness, the Applicant “can rebut a *prima facie* case of obviousness . . . by showing the criticality of the claimed range.” MPEP 2144.05(III). In the present claims, each independent claim recites an auxin application rate range and then immediately adds that such a rate is in an amount effective to inhibit fungi growth or to control insects, but is insufficient to negatively affect growth of plant tissues. *See, e.g.*, claim 1. This additional language establishes why the claimed range is critical. That is, deviation from the range may lead to ineffectiveness at inhibiting fungi growth or controlling insects (if too little auxin is applied), or negative effects on the growth of plant tissues (if too much auxin is applied). Thus, because the claimed ranges are critical, they are not rendered obvious by the prior art relied on by the Examiner.

C. Dependent Claims

Applicant respectfully submits that claims 9-12, 16-18, 20, 21, 26, 31, 38, 42, 43, 45, 47-50, 52, 57, 58, 63-67, 69, 71, and 76-100 are allowable by virtue of their dependency on at least one of the independent claims whose patentability is discussed above, as well as for other patentable features recited therein.

II. 35 U.S.C. § 112 Rejections

Finally, the Examiner rejected claims 1, 9-12, 16-18, 20, 21, 25, 26, 28, 31, 33, 38, 42, 43, 45, 47-52, 54, 57, 58, 60, 63-69, 71, and 76-100 under 35 U.S.C. § 112, ¶ 1 as failing to comply with the written description requirement. In particular, the Examiner asserts that the term “principal fungi-inhibitor” and the language referring to indole-3-acetic acid and indole-3-butyric acid as principal fungi-inhibitors are new matter.

Support for these features can be found throughout the specification. For instance, Examples 1 and 2 in the specification identify auxin as the plant hormone principally responsible for reducing or inhibiting fungus and disease in plants. *See* specification at ¶¶[0044]-[0057]. Therefore, auxin is a principal fungi-inhibitor. In addition, the specification teaches that examples of preferred auxins are indole-3-acetic acid (IAA) and indole-3-butyric acid (IBA). *See* specification at ¶[0034]. Thus, IAA and IBA are principal fungi-inhibitors.

III. Conclusion

As all of the rejections set forth in the Official Action have been fully met, favorable reconsideration and allowance are earnestly solicited. If, however, for any reason the Examiner does not believe that such action can be taken at this time, it is respectfully requested that the Examiner telephone Applicant’s attorney at (713) 220-4200 in order to overcome any additional objections that the Examiner might have.

If there are any charges in connection with this requested amendment, the Examiner is authorized to charge Deposit Account No. 50-0897 therefor.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Taylor P. Evans", written over a horizontal line.

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